

Anatomy of flowering plant MCQ Question Answer

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Question: 1. A tissue is a group of cells which are

- Option A. similar in origin, but dissimilar in form and function.
- Option B. dissimilar in origin, form and function.
- Option C. dissimilar in origin, but similar in form and function.
- Option D. similar in origin, form and function.

Question: 2. Apical, intercalary and lateral meristems are differentiated on the basis of

- Option A. origin
- Option B. function
- Option C. position
- Option D. development

Question: 3. Which of following helps bamboo and grasses to elongate ?

- Option A. Apical meristems
- Option B. Lateral meristems
- Option C. Secondary meristems
- Option D. Intercalary meristems

Question: 4. Which meristem helps in increasing girth?

- Option A. Lateral meristem
- Option B. Intercalary meristem
- Option C. Primary meristem
- Option D. Apical meristem

Question: 5. Cells of permanent tissues are specialized

- Option A. functionally.
- Option B. only structurally.
- Option C. both structurally and functionally.
- Option D. for mitosis.

Question: 6. The apical meristem of the root is present

- Option A. in all the roots.
- Option B. only in radicals.
- Option C. only in tap roots.
- Option D. only in adventitious roots.

Question: 7. During the formation of leaves and elongation of stem, some cells left behind from the shoot apical meristem, constitute the

- Option A. lateral meristem
- Option B. axillary bud
- Option C. cork cambium
- Option D. fascicular cambium

Question: 8. A plant tissue when stained showed the presence of hemicellulose and pectin in cells wall of its cells. The tissue is called

- Option A. collenchyma
- Option B. sclerenchyma
- Option C. xylem
- Option D. meristem

Question: 9. Various functions like photosynthesis, storage, excretion performed by _____.

- Option A. sclerenchyma
- Option B. parenchyma
- Option C. collenchyma
- Option D. aerenchyma

Question: 10. Sclerenchyma usually_____and_____ protoplasts.

- Option A. live, without
- Option B. dead, with
- Option C. live, with
- Option D. dead, without

Question: 11. The _____ occurs in layers below the epidermis in dicotyledonous plants.

- Option A. parenchyma
- Option B. sclerenchyma
- Option C. collenchyma
- Option D. aerenchyma

Question: 12. Xylem functions as a conducting tissue for water and minerals from _____to the _____and_____.

- Option A. roots, stems, leaves
- Option B. stems, roots, leaves
- Option C. leaves, stems, roots
- Option D. leaves, stems, leaves

Question: 13. Lignin is the important constituent in the cell wall of

- Option A. phloem
- Option B. parenchyma
- Option C. xylem
- Option D. cambium

Question: 14. Cork cambium and vascular cambium are

- Option A. the parts of secondary xylem and phloem.
- Option B. the parts of pericycle.
- Option C. lateral meristems.
- Option D. apical meristems.

Question: 15. Which one of the following have vessels as their characteristic feature?

- Option A. Angiosperms
- Option B. Gymnosperms
- Option C. Pteridophytes
- Option D. Bryophytes

Question: 16. Phellogen and phellem respectively denote

- Option A. cork and cork cambium,
- Option B. cork cambium and cork,
- Option C. secondary cortex and cork,
- Option D. cork and secondary cortex,

Question: 17. In stems, the protoxylem lies towards the _____ and the metaxylem lies towards the _____ of the organ.

- Option A. centre; periphery
- Option B. periphery; centre
- Option C. periphery; periphery
- Option D. centre; centre

Question: 18. Bast fibres are made up of _____ cells.

- Option A. sclerenchymatous
- Option B. chlorenchymatous
- Option C. parenchymatous
- Option D. aerenchymatous

Question: 19. An organised and differentiated cellular structure having cytoplasm but no nucleus is called _____.

- Option A. vessels
- Option B. xylem parenchyma
- Option C. sieve tubes
- Option D. tracheids

Question: 20. A vascular bundle in which the protoxylem is pointing to the periphery is called _____.

- Option A. endarch
- Option B. exarch

- Option C. radial
- Option D. closed

Question: 21. A narrow layer of thin walled cells found between phloem/ bark and wood of a dicot is

- Option A. cork cambium
- Option B. vascular cambium
- Option C. endodermis
- Option D. both (a) & (c)

Question: 22. Main function of lenticel is

- Option A. transpiration
- Option B. guttation
- Option C. gaseous exchange
- Option D. both (a) & (c)

Question: 23. Cork is formed from

- Option A. phellogen
- Option B. vascular cambium
- Option C. phloem
- Option D. xylem

Question: 24. Which of the following is responsible for the formation of an embryonic shoot called axillary bud?

- Option A. Lateral meristem
- Option B. Apical meristem
- Option C. Intercalary meristem
- Option D. Both

Question: 25. Read the following statements and answer the question.

1. Cambium is very active and produces a large number of xylary elements having vessels with wider cavities.
2. It is also called early wood.
3. It is lighter in colour and has lower density.

Which type of wood is described by the above statements?

- Option A. Sap wood
- Option B. Heart wood
- Option C. Spring wood
- Option D. Autumn wood

Question: 26. Read the following statements and answer the question.

1. It has a sclerenchymatous hypodermis, a large number of scattered vascular bundles and a large

parenchymatous ground tissue.

2. Vascular bundles are conjoint and closed.
3. Peripheral vascular bundles are generally smaller than the centrally located ones.
4. Phloem parenchyma is absent, and water- containing cavities are present within the vascular bundles.

Which plant anatomy is being described by the above statements?

- Option A. Dicotyledonous root
- Option B. Monocotyledonous root
- Option C. Dicotyledonous stem
- Option D. Monocotyledonous stem

Question: 27. Which of the following statement(s) is/are correct ?

1. Uneven thickening of cell wall is characteristic of sclerenchyma.
2. Periblem forms cortex of the stem and the root.
3. Tracheids are the chief water transporting elements in gymnosperms.
4. Companion cell is devoid of nucleus at maturity.
5. The commercial cork is obtained from *Quercus suber*.

- Option A. (i) and (iv) only
- Option B. (ii) and (v) only
- Option C. (iii) and (iv) only
- Option D. (ii), (iii) and (v) only

Question: 28. Which of the following statements are correct ?

1. Xylem transports water and minerals.
2. Gymnosperms lack sieve tubes and companion cells in phloem.
3. The first formed primary xylem is called metaxylem.
4. Phloem fibres (bast fibres) are made up of collenchymatous cells.

- Option A. (i) and (iii)
- Option B. (i) and (ii)
- Option C. (iii) and (iv)
- Option D. (i) and (iv)

Question: 29. Which type of plant tissue is being described by the given statements?

1. It consists of long, narrow cells with thick and lignified cell walls having a few or numerous pits.
2. They are dead and without protoplasts.
3. On the basis of variation in form, structure, origin and development, it may be either fibres or sclereids.
4. It provides mechanical support to organs.

- Option A. Parenchyma
- Option B. Sclerenchyma

- Option C. Collenchyma
Option D. Chlorenchyma

Question: 30. Which of the following statement(s) is/are not correct?

1. Cork cambium is also called phellogen.
2. Cork is also called phellem.
3. Secondary cortex is also called periderm.
4. Cork cambium, cork and secondary cortex are collectively called phelloderm.

Option A. (iii) and (iv)

Option B. (i) and (ii)

Option C. (ii) and (iii)

Option D. (ii) and (iv)

Answer Sheet

1	D	A group of structurally similar or dissimilar cells that perform a common function and have a common origin is called a tissue. A plant is made up of different kinds of tissues. The complex tissues are, however, composed of different kinds of cells and they perform different types of functions.
2	C	Apical, intercalary and lateral meristems are differentiated on the basis of position. Apical meristem is situated at the shoot apex and the root apex. Intercalary meristem is present at the base of internodes, e.g., in grasses or at the base of leaves e.g., in Pinus or at the base of nodes, e.g., mint. Lateral meristems are present along the lateral sides of stem and roots.
3	D	Intercalary meristem develops between regions of mature or permanent tissue (as at the base of the grass leaf). The cells of this tissue possess the ability to divide and produce new cells, as do apical and lateral meristems. Intercalary meristem helps the bamboo and grasses to elongate.
4	A	Lateral meristem divides only periclinally or radially and is responsible for increase in girth or diameter. It includes vascular cambium and cork-cambium.
5	C	Following divisions of cells in both primary and as well as secondary meristems, the newly formed cells become structurally and functionally specialized and lose the ability to divide. Such cells are termed as permanent or mature cells and constitute the permanent tissues.
6	A	The apical meristem, or growing tip, is a completely undifferentiated meristematic tissue found in the buds and growing tips of roots in plants. Its main function is to begin growth of new cells in young seedlings at the tips of roots and shoots (forming buds, among other things). The apical meristem of the root is present in all of the roots.
7	B	Axillary buds are present in the axils of leaves and are capable of forming a branch or a flower.
		Collenchyma is living mechanical tissue, found beneath the epidermis (i.e., hypodermis) of herbaceous dicot stem. The intercellular spaces in this tissue are absent because in

8	A	intercellular spaces at the corner of cells thickenings of cellulose and pectin develop due to which the cell wall become rigid and thick at corners.
9	B	Parenchyma is the commonest simple tissue. This is the most primitive tissues from which other tissues are evolved and hence also called as fundamental tissue. The main function of parenchyma is storage of food. Photosynthesis, respiration, secretion, assimilation, etc are some of the important processes which occur in parenchymatous cells.
10	D	Sclerenchyma consists of long, narrow cells with thick and lignified cell walls having a few or numerous pits. They are usually dead and without protoplasts. They are simple dead mechanical tissue occurring in mature organs of plants body. They are chiefly distributed in cortex, pericycle, xylem and phloem region.
11	C	The collenchyma occurs in layers below the epidermis or outer layer of cells in young stems and in leaf veins in dicotyledonous plants. Collenchyma cells are elongated cells with irregularly thick cell walls that provide support and structure. Their thick cell walls are composed of the compounds cellulose and pectin.
12	A	Xylem is a complex permanent tissue mainly responsible for conduction of water and minerals from the roots to the top of plants (unidirectional).
13	C	Lignin is the important constituent in the cell wall of xylem. Xylem consists of four different types of elements- tracheids, vessels, and xylem parenchyma and xylem fibres. Wall of tracheids are highly thickened by the deposition of lignin, except at certain points called as pits.
14	C	Cork cambium and vascular cambium are lateral meristem. Lateral meristems are responsible for increase in thickness of the axis.
15	A	The presence of vessels is a characteristic feature of angiosperms. Vessels help in conduction of water and dissolved salts from roots to the different parts of the shoot and provides mechanical support.
16	B	Phellogen and phellem are respectively called as cork cambium and cork. Phellogen is defined as the meristematic cell layer responsible for the development of the periderm. Cells that grow inwards from the phellogen are termed phelloderm, and cells that develop outwards are termed phellem or cork.
17	A	The first formed primary xylem elements are called protoxylem and the later formed primary xylem is called metaxylem. In stems, the protoxylem lies towards the centre (pith) and the metaxylem lies towards the periphery of the organ. This type of primary xylem is called endarch.
18	A	Bast fibres (phloem fibres) are sclerenchymatous dead cells that provide mechanical strength. They have thick wall with simple pits.
19	C	A mature sieve element possesses a peripheral cytoplasm and a large vacuole but lacks nucleus. Sieve tube consists of row of cells arranged one above the other to form long pipes. Sieve tube occurs in angiosperms. The functions of sieve tubes are controlled by the nucleus of companion cells.
		In roots, the protoxylem lies towards periphery and metaxylem lies towards the centre.

20	B	Such arrangement of primary xylem is called exarch.
21	B	Vascular cambium is located between the xylem and the phloem in the stem and roots of a vascular plant, and is the source of both the secondary xylem growth (inwards, towards the pith) and the secondary phloem growth (outwards).
22	A	Lenticels are some loosely arranged areas in the periderm. Formed due to rapid activity of phellogen. Lenticels are characteristics of woody stem. They help in gaseous exchange and transpiration.
23	A	In hypodermis or outer cortical cells, a layer becomes meristematic which is known as cork cambium or phellogen. Phellogen cuts off cells on both sides. The cells cut off on outer side are phellem or cork cells and cells cut off on inner side are phelloderm or secondary cortex.
24	C	Apical meristem is a completely undifferentiated meristematic tissue found in the buds and growing tips of roots in plants. Its main function is to begin growth of new cells in young seedlings at the tips of roots and shoots (forming buds, among other things). The axillary bud is an embryonic shoot which lies at the junction of the stem and petiole of a plant. As the apical meristem grows and forms leaves, it leaves behind a region of meristematic cells at the node between the stem and the leaf.
25	C	The described statements are associated with spring wood or early wood. Spring woods are the softer more porous portion of an annual ring of wood that develops early in the growing season. It consists of large thin-walled xylem cells.
26	D	All the given statements represent the anatomical features of monocotyledonous stem. Monocot stem is characterised by epidermis (2- 3layered), hypodermis and undifferentiated ground tissue stem. Vascular strand is numerous and scattered. Vascular bundles are conjoint, collateral and closed.
27	D	Statements (ii), (iii) and (v) are correct. (i) Uneven thickening of the cell wall is not the characteristics of sclerenchyma. (iv) A mature sieve elements are devoid of nucleus at maturity.
28	B	The first formed primary xylem elements are called protoxylem and the later formed primary xylem is called metaxylem. Phloem fibres (bast fibres) are made up of sclerenchymatous cells.
29	B	The given statements are associated with sclerenchyma plant tissue. Sclerenchyma cells are strengthening tissue in a plant, formed from cells with thickened, typically lignified, walls. Such cells occur in many different shapes and sizes, but two main types occur: fibres and sclereids. Fibres are greatly elongated cells whose long, tapering ends interlock, thus providing maximum support to a plant. They can be found almost anywhere in the plant body, including the stem, the roots, and the vascular bundles in leaves. Sclereids are extremely variable in shape and are present in various tissues of the plant such as the periderm, cortex, pith, xylem, and phloem.
30	A	Secondary cortex is also called phelloderm cork cambium, cork and secondary cortex are collectively called periderm.